REMARKS

Response to Arguments

The examiner also stated that: "Applicant's arguments with respect to claims 1-15 and 20-26 have been considered but are moot in view of the new ground(s) of rejection." Applicant believes that the prior response overcame the rejections and therefore the examiner should so state for the record.

35 USC § 112

The examiner rejected Claims 11-15 and 23-25 under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling.

The examiner stated:

> **The "surface area enhanced planar vaporization membrane" critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See In re Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Claim 11 recites the limitation "to enhance a delivery rate of the liquid source of oxidizable fuel in a vapor phase to the egress port of the cartridge". The surface area enhanced planar vaporization membrane is essential for the fuel cartridge to be able to deliver a liquid source of oxidizable fuel in a vapor phase. The specification does not disclose any embodiments of a fuel cartridge that does not include a vaporization membrane that delivers a liquid source of oxidizable fuel in a vapor phase.**

Applicant disagrees. The examiner has not shown that Applicant has described or argued the feature of a vaporization membrane claims as essential to practice the clamed invention. Indeed, claim 11 calls for "fuel egress port supported by one of the walls of the housing of the cartridge with the at least a portion of a wall of the housing sinking heat generated from external components to enhance a delivery rate of the liquid source of oxidizable fuel in a vapor phase to the egress port of the cartridge."

Applicant describes that:

> Referring to FIG. 4, another approach 80 can vaporize the liquid fuel, e.g., methanol in a fuel cartridge 12 entirely through a

> thermal process without the need for a membrane. In this arrangement, power is drawn from the fuel cell (not shown), or supplied through a small battery 82 (button cell, for example) located within or on the fuel cartridge 12 to power a heating mechanism 84. Here, the heating mechanism 84 is schematically shown without connections to the battery, as a wire disposed at the egress port 32 of the fuel cartridge 12.
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> ****
>
> In some embodiments of the fuel cartridge 12 the walls or at least portions of a wall, e.g., 12a of the fuel cartridge 12 are fabricated from a thermally conductive material, typically a metal. Such an embodiment of a fuel cartridge 12 uses the walls of the fuel cartridge as a heat sink for heat generated by small portable devices like a lap top computers. The metal or conductive material or at least those portions of the cartridge comprised of the conductive material are disposed in thermal communication with a heat-dissipating component 19 within the device 10.

Nothing in Applicant's specification, as filed requires that the membrane be part of all embodiments of Applicant's claimed invention, as disclosed above. Accordingly, this rejection is improper and should be removed.

35 USC § 102

The examiner rejected Claims 11-15 and 23-25 are rejected under 35 U.S.C. 1 02(a) (e) as being anticipated by Kamo et al (US 2003/0059659).

The examiner stated:

> **Regarding claim 11, the Kamo reference discloses a fuel container "1" (fuel cartridge) that supplies a source of fuel to a fuel cell, the fuel container comprising: a housing "1" that defines a fixed interior space to confine and be in contact with an aqueous methanol solution (liquid source of an oxidizable fuel) (paragraph [0163] and Fig. 17); wherein the housing "1" has walls that define the fixed interior space and are made of SUS 304 (thermally conductive material) (paragraph [0146]); wherein the diffusion hole structure "3" (fuel egress port) is supported by one of the walls of the housing of the container (paragraph [0045] and Fig. 17). Examiner's note: It is the position of the examiner that the broadest reasonable interpretation of a "fuel egress port" is a structure with an opening that allows fuel to exit from the container. Therefore, the "diffusion hole structure" taught by Kamo can be construed as a "fuel egress port". In**

> **addition, the portion of the wall adjacent to the interconnector "4" (Fig. 17) is inherently capable of sinking heat generated from external components to enhance a delivery rate of the liquid source of oxidizable fuel in a vapor phase to the egress port of the container.**

Claim 1 has been amended to clarify the features over Kamo. Claim 1 now calls for "A portable container that supplies a source of fuel to a direct methanol fuel cell … a housing provided by a plurality of walls each of the walls … of a vapor impermeable material, the walls of the housing defining a fixed interior space confining a vapor and having at least a portion of a first one of the walls … comprised of a thermally conductive material, a fuel egress port member supported by one of the walls of the housing, the fuel egress port member having a single passage through the one wall of the housing and configured to be easily attachable to and detachable from a fuel cell; and a surface area enhanced planar vaporization membrane …, and the egress port member delivering the oxidizable fuel in a vapor phase from the container.

Claim 1 is neither described nor rendered obvious by Kamo. Kamo describes:

> **[0044]** Typical embodiments of the present invention are explained in detail with reference to drawings. **FIG. 1** is an example of cross-sectional structure of a liquid fuel container composing the present invention.
>
> **[0045]** Multiple mounting parts **2** for a fuel cell having an insulating surface are fitted on an outer wall surface of a fuel container **1**, and in a container wall of said mounting part **2** of fuel cell, a net-like structure, a porous layer or a slit-like diffusion hole structure **3** through which a liquid fuel sufficiently permeates is formed in advance.
>
> **[0046]** An anode side interconnector **4** is formed on a surface of the mounting part **2** of fuel cell by coating and baking a corrosion resistant and conductive material to electrically connect to an adjacent fuel cell. The interconnector **4** has a net-like structure, a porous layer or a slit-like diffusion hole structure through which a liquid fuel sufficiently permeates.
>
> **[0047]** An electrochemically inactive liquid fuel sucking material **5** is mounted on an inner wall surface of a fuel container **1**. Fuel cells mounted on a wall surface of a fuel container are electrically connected in series or in combination of series and parallel, and fuel cell terminals **6** of an anode and a cathode are equipped to take out power from a power generation equipment.

As such, Kamo does not describe the arrangement of either the housing walls or the egress port. That is, Kamo does not describe (and indeed teaches away from) a housing … each of the walls of the housing of a vapor impermeable material. As described and illustrated by Kamo, the housing includes the features of diffusion holes and interconnect, and thus does not met the limitations that the each of the walls of the housing of a vapor impermeable material and the walls confine vapor. Kamo teaches a different arrangement. See paragraphs 44-45 reproduced above.

Kano also does not teach the egress port member, as claimed. See paragraph 46.

Also, the examiner appears to assume that "SUS" is a thermally conductive material. If the examiner is aware of some standard that describes SUS as a thermally conductive material, Applicant requests that the examiner furnish documentary support for that meaning. Otherwise, Applicant requests that the examiner explain the statement "**…and are made of SUS 304 (thermally conductive material) (paragraph [0146]).**"[1] It does not appear to Applicant that this statement of the examiner finds support in the reference.

The dependent claims are allowable over Kamo at least because of their dependency on claim 11. In addition, these claims add patentable distinct features. For example, Kamo does not teach claim 13 wherein remaining portions of walls of the housing are thermally insulating, or claim 14 wherein the at least a portion of the wall of the housing being comprised of a thermally conductive material is the complete portion of the wall.

Claim 23 further distinguishes by requiring "the fuel cartridge is configured for a specific electronic device, and wherein the portion of the wall of the housing of the cartridge is configured to be disposed adjacent a heat dissipating element of the electronic device." The examiner considers this to be an intended use. Applicant disagrees. This feature imposes a structural limitation on the fuel cartridge requiring a specific configuration.

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[1] Kamo describes:

[0100] *** Said laminated cell 94 was fixed as shown in FIG. 10A, with a fastening band 17 made of fluorocarbon rubber (Viton from DuPont Inc.), using a SUS 316 holder 105, having a structure shown in FIG. 9, whose surface was insulated with an epoxy resin (Flep from Toray Thiokol Co., Ltd.).

35 USC § 103

The examiner rejected Claims 1-10 and 20-22 under 35 U.S.C. 103(a) as being unpatentable over Hirsch et al (US 2004/0209133) in view of Kamo et al (US 2003/0059659).

The examiner stated:

> Regarding claims 1, 3, and 10, the Hirsch reference discloses a fuel tank "210" (fuel container) that supplies a source of fuel to a direct methanol fuel cell, wherein the fuel tank inherently comprises a housing defining a fixed interior space (paragraph [0007],[0052] and Fig. 2); wherein a first component of the shutter assembly "402a" (fuel egress port/fuel delivery regulation assembly) is located within the fuel tank which implies that the first component is supported by the housing of the fuel tank (paragraph [0057]); wherein a methanol delivery film, MDF, "212" (surface area enhanced planar vaporization membrane) is contained within the fuel tank, wherein liquid fuel from fuel tank passes through the methanol delivery film "212" and undergoes a phase change and becomes a vapor which implies that a substantial fixed portion of the fixed interior space of the housing and the methanol delivery film are in direct contact with the liquid fuel, wherein a fuel delivery regulation assembly "220" (fuel egress port) controls the amount of vaporous fuel that travels from the vapor chamber of the fuel tank (paragraph

tank passes through the methanol delivery film "212" and undergoes a phase change and becomes a vapor which implies that a substantial fixed portion of the fixed interior space of the housing and the methanol delivery film are in direct contact with the liquid fuel, wherein a fuel delivery regulation assembly "220" (fuel egress port) controls the amount of vaporous fuel that travels from the vapor chamber of the fuel tank (paragraph [0052]). Examiner's note: It is the position of the examiner that the broadest reasonable interpretation of a "fuel egress port" is a structure with an opening that allows fuel to exit from the container. Therefore, the first component "402a" comprising apertures "404a" taught by Hirsch can be construed as a "fuel egress port".

However, Hirsch et al does not expressly teach at least a portion of the wall of the housing being composed of a thermally conductive material (claim 1), wherein the at least a portion of a wall of the housing being comprised of a thermally conductive material is comprised of a metal (claim 3), wherein the at least a portion of a wall of the housing being comprised of a thermally conductive material sinks heat to enhance a delivery rate of methanol in a vapor phase across the membrane to deliver the vapor at the egress port of the container (claim 10). The Kamo reference discloses a fuel container that is made of SUS 304 (stainless steel metal/thermally conductive material) (paragraph [0146]). Examiner's note: Regarding claim 10, examiner takes the position that fuel container walls made of a stainless steel metal are capable of sinking heat to enhance a delivery rate of methanol in a vapor phase across the methanol delivery film (membrane) of Hirsch to deliver the vapor at the egress port of the container.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of Kamo indicates that SUS 304 is a suitable material for use as fuel container housing walls. The selection of a known material based on its suitability for its intended use has generally been held to be *prima facie* obvious (MPEP §2144.07). As such, it would be obvious to use SUS 304.

Claim 1 has been amended to clarify the features over the combination of references. Claim 1 now calls for "A portable container … a housing provided by a plurality of walls each of the walls of the housing of a vapor impermeable material, the walls of the housing defining a fixed interior space confining a vapor and having at least a portion of a first one of the walls … of a thermally conductive material, a fuel egress port member supported by a second, different one of the walls of the housing, the fuel egress port member having a single passage through the second, different one of the walls of the housing; and a surface area enhanced planar vaporization membrane disposed in the housing … the surface area enhanced planar vaporization membrane and a substantial fixed portion of the fixed interior space of the housing confining and being in direct contact with a liquid source of an oxidizable fuel, and the egress port member being isolated from the liquid source and delivering the oxidizable fuel in a vapor phase from the container."

Hirsch describes direct fuel feed to electrode membranes of a fuel cell through a delivery membrane (FIG. 1 and paragraph [0047]). Hirsch does not include "a fuel egress port supported by the housing ... and the egress port delivering the oxidizable fuel in a vapor phase." It would not have been obvious to modified Hirsch to include the "fuel egress port supported by the housing" because Hirsch directly feeds the vaporized fuel to the electrode membranes and there is no need for a fuel egress port. Although Hirsch includes a fuel delivery regulation assembly to control the delivery rate of the fuel (FIG. 1), the fuel delivery regulation assembly is not a fuel egress port supported by the housing and does not deliver an oxidizable fuel in a vapor phase. Instead, the fuel delivery regulation assembly regulates liquid flow of the fuel from the fuel tank (paragraph [0056]).

Hirsh also does not teach the feature of the housing as claimed, namely: "a housing provided by a plurality of walls each of the walls of the housing of a vapor impermeable material, the walls of the housing defining a fixed interior space confining a vapor and having at least a portion of a first one of the walls of the housing being comprised of a thermally conductive material."

In order to enable Applicant to better understand the examiner's position the examiner is requested to kindly delineate for Applicant what the examiner considers as encompassing the housing of Hirsh. Hirsh Figs. 1 or 2 (Fig. 2 reproduced below) do not teach the forgoing features of the housing.

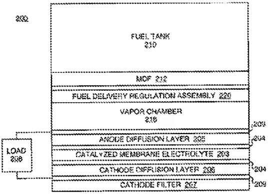

FIG. 2

As seen in Fig. 2, the housing of the alleged "container" is not provided by a plurality of walls each of which are of a vapor impermeable material. The housing of Fig. 2 also does not have the walls define a fixed interior space confining a vapor.

The examiner acknowledges that Hirsh does not teach the feature of the housing that the housing has "at least a portion of a first one of the walls of the housing being comprised of a thermally conductive material." The examiner relies on Kamo for this teaching, specifically,

> The Kamo reference discloses a fuel container that is made of SUS 304 (stainless steel metal/thermally conductive material) (paragraph [0146]). Examiner's note: Regarding claim 10, examiner takes the position that fuel container walls made of a stainless steel metal are capable of sinking heat to enhance a delivery rate of methanol in a vapor phase across the methanol delivery film (membrane) of Hirsch to deliver the vapor at the egress port of the container.

Again, Applicant requests that the examiner explain the basis for the interpretation of "SUS."

Applicant contends that while some of the materials described by Kamo are capable of sinking heat that is of no consequence to the features of this claim and the alleged combination of references. Kamo, as with Hirsh are directed to integrated arrangements of a fuel cell and "container." Indeed, in Kamo, the container is intimately integrated with the features of the fuel cell. Thus, Kamo's teachings of various materials would not provide any suggestion to make the alleged modification to Hirsh's teachings because Kamo does not use thermally conductive materials for their thermal properties *per se,* especially permitting those portions of the housing confining and being in direct contact with a liquid source of an oxidizable fuel to improve vaporization of the fuel by use of such thermally conductive walls.

The examiner rejected Claim 26 under 35 U.S.C. 103(a) as being unpatentable over Kamo et al (US 2003/0059659) in view of Hirsch et al (US 2004/0209133).

The examiner uses Hirsh to teach "surface area enhanced planar vaporization membrane residing in the cartridge" to Kamo's teachings as applied to claim 11. For reasons stated above the claim is also allowable over the alleged combination.

In addition, Applicant contends that Hirsh also does not teach the claimed "surface area enhanced planar vaporization membrane."

No fee is due. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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